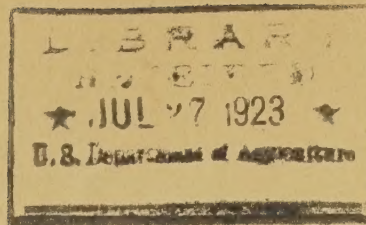


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19
EX-4 R



U. S. Department of Agriculture,

Summary of

WESTERN RANGE EXHIBIT

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This summary gives a short account of the information contained in each section of the Exhibit. The Exhibit is divided into booths, each booth treating a separate phase of the production of livestock and management of the Western ranges, under the following captions:

Range Cattle Production
In and Out of the Forest
Forest Range Management
Stock-poisoning Plants
Range Sheep Improvement

Each booth is 13 feet wide across the face, 8 feet deep, and tapers to a width of 8 feet at the back. Each section of the booth is 8 feet long and 4 feet high, supported on pillars 3 feet from the floor.

U. S. Department of Agriculture
Western Range Exhibit

Range-Cattle Production.

Range-cattle production must be managed much better than 40 years ago, when feeding costs were nearly nothing on account of almost unlimited free range. This exhibit reproduces a typical range scene and points out some of the more important phases and approved practices in range-cattle production as determined by progressive ranchmen and experiment stations, as follows:

"Well-fed and vigorous bulls help to insure a bigger calf crop. In late fall, winter and early spring, keep the bulls away from the cows, feed about one-third of a pound of a good grain mixture for each one hundred pounds live weight, and plenty of good hay (25 to 30 pounds) preferably alfalfa or some other legume. In summer, pasture may be supplemented with a grain mixture, the same as fed in winter."

"Corn Belt feeders pay a premium for uniform stockers and feeders. To produce them, use good purebred beef bulls of the same type, select well-bred and uniform heifers and breed at as nearly the same time as practicable to have the calves about the same age."

"Cows must be kept in vigorous condition the year around to produce strong calves, to give plenty of milk for rapid growth, and to breed early and regularly. Use such foods as alfalfa, or silage and cottonseed meal. Shelter from severe weather saves feed and prevents losses."

"Plenty of milk is the best calf feed. Keep them growing through the first winter using such feeds as alfalfa or silage and some meal rich in protein. See that they have shelter from winter storms and are free from diseases and parasites."

As the sale of weanling calves to Corn Belt feeders becomes more and more generally practiced, it is found more desirable to see that good cows are well fed and cared for, so that their calves will not only be good ones but also grow well and sell well. Additional information on range cattle management may be secured from the United States Department of Agriculture and the agricultural experiment stations of the Western States.

U. S. Department of Agriculture
Western Range Office

Range-Cattle Production

Range-cattle production must be managed much better than it is now, when feeding costs are really rising on account of almost unlimited free ranges. This article reviews a typical range season and points out some of the more important changes and improved practices in range-cattle production as determined by progressive ranchmen and experiment stations as follows:

"Fall-feeding and wintering cattle help to insure a bigger calf crop. In late fall, winter and early spring, keep the cattle away from the snow, feed about one-third of a pound of a good grain mixture for each one hundred pounds live weight, and plenty of good hay (25 to 35 pounds) preferably alfalfa or some other legume. In winter, pastures may be supplemented with a grain mixture, the same as fed in winter."

"John Galt Leckert says a premium for winter stockers and feeders. To produce them, use good pastured beef cattle of the same type, select wintered and wintered calves and breed at an early time as possible to have the calves about the same age."

"Cows must be kept in winter condition for their calves to produce strong calves, to give plenty of milk for rapid growth, and to breed early and regularly. Use much feed as alfalfa, or things and concentrate well. Shelter from severe weather, snow, wind and prevent losses."

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U. S. Department of Agriculture
Western Range Exhibit

STOCK-POISONING PLANTS.

Plants which are injurious to domestic animals are found in all parts of the United States. The heaviest losses by poisoning, however, have occurred in the West, partly because of the methods used in handling animals on the range, and partly because those plants sometimes grow in that part of the country in large masses. Three groups of plants which are especially destructive in the range country have been chosen to illustrate the exhibit.

Larkspurs grow in the eastern United States and cause some losses, but they are found in especial abundance in the mountain regions of the West. They are poisonous to horses, but all the losses under range conditions are of cattle. Sheep can graze on larkspur without harmful effect, but heavy losses are caused in cattle. The exhibit shows pictures of cattle showing the characteristic symptoms of larkspur poisoning at various stages of the attack. A method of treating cattle poisoned by larkspur has been found which will prevent a large part of the losses. It is also possible in restricted areas to grub out enough of the plants to prevent serious loss. For further information Department Bulletin 365 or Farmers' Bulletin 988 may be consulted.

The death camas species include several varieties which vary considerably in their poisonous properties. Losses have been reported from Utah, Nevada, Idaho, and eastern Oregon. The plants are poisonous to both cattle and sheep. Typical symptoms are salivation weakness, and prostration. In serious cases of poisoning it is difficult to rouse the animals. Since some species of death camas are from three to seven times as poisonous as others, it is very desirable that stockmen be able to distinguish the most dangerous from the least dangerous plants. Details in regard to the death camas species may be found in Department Bulletin 1012.

The loco weeds are probably the most destructive of all the poisonous plants of the West. They affect cattle, horses, and sheep, and have caused enormous losses. The symptoms come on only after somewhat prolonged feeding, and recovery, if it occurs, is a long process. There are a number of loco weeds, and three of the most important are illustrated in the panel. Various closely related plants of the pea family are popularly called locoes but are not poisonous. Loco plants are widely distributed, covering a large portion of the plains areas of the West. Methods of treatment have been devised by which recovery can be practically assured in regard to cattle, and horses may recover to such an extent as to be useful, although they are never so good as before suffering from the disease. Further information in regard to loco poisoning may be obtained from Farmers' Bulletin 1054.

U. S. Department of Agriculture
Western Range Exhibit

RANGE SHEEP IMPROVEMENT

The booth bearing the title "Range Sheep Improvement" shows the department's work in developing and improving types of range sheep. The headquarters for this work are at the U. S. Sheep Experiment Station, near Dubois, Idaho. The breeds used chiefly in seeking the ideal type of range sheep are the Rambouillet, Corriedale, and Columbia.

The Columbia breed of sheep is a new breed developed by the U. S. Department of Agriculture and appears to be well adapted to range conditions. The ewes produce heavy salable fleeces of medium wool and the lambs mature for market at an early age.

The plan of breeding is presented and discussed briefly. An enlarged picture of the sheep experiment station near Dubois enables the observer to form an idea of the equipment and the nature of the country for which the sheep are adapted.

The purpose of having a sheep experiment station in the range district is to study problems of sheep management and improvement under conditions similar to those confronting range sheepmen.

Besides the studies on breeding, the work includes investigations on methods of supplying sheep with water on dry grazing lands, methods of wintering range sheep including production of winter feed on high, arid lands, and range improvement through grazing studies.

The fleeces produced by the experimental sheep are scored for fineness of fiber, length of staple, character, distribution, and density of fleece over the back. Fleece samples are used in the wool laboratory to determine the percentages of grease, dirt, and clean wool.

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U. S. Department of Agriculture
Western Range Exhibit

IN AND OUT OF THE FOREST

The National Forests contain approximately 110,000,000 acres of grazing land suitable for beef cattle and sheep. This booth presents the Department's permit system, under which livestock belonging to settlers living in and adjacent to the National Forests graze, upon the payment of a small fee, on Forest ranges for periods varying from several months to yearlong.

During the winter most of the cattle and sheep which use Forest ranges are held on the owners' meadows and feed lots or on outside winter ranges. In the spring they are driven to the National Forests where, under liberal regulations which insure maintenance of the forage crop and satisfactory production of meat and wool, they graze and fatten. Millions of fat lambs and steers are shipped to market every year. When not overgrazed Forest range is benefited by having livestock on it. One of the chief advantages is the reduced fire hazard from the cropping of the grass and other vegetation. Approximately 700,000,000 pounds of beef and mutton are produced yearly with benefit to the producers and consumers alike.

As shown in the booth, part of the revenues to the Government from this grazing use are returned to the communities for the construction and maintenance of roads and the establishment and upkeep of schools. For a five-year period ending 1922 the States received over a million dollars for roads and schools, and a further sum of \$400,000 for the building of roads and trails within National Forests which were of vital importance to the adjacent communities.

U. S. Department of Agriculture
Western Range Exhibit

FOREST-RANGE MANAGEMENT

Although the resources of our National Forest ranges for feeding livestock are enormous, it is important that those ranges be managed wisely in order to insure stability of the livestock industry. This booth presents the best methods of handling livestock on forest ranges in order to prevent waste and destruction.

The old way of herding sheep in compact bands resulted in damage to the range, the forage plants being trampled out, the surface of the soil cut up by trails, and the carrying capacity reduced. The Department recommends that sheep be handled under the "open herding and bedding out" system, by which the animals are allowed to graze quietly and scatter rather widely into an open band, shade up in small bunches during the heat of the day, and without trailing, bed down at night on fresh feed. Such herding methods increase the carrying capacity of the range and produce fatter sheep and lambs.

A colored diagram shows the result of former methods, when sheep were driven back to the same bed ground for many nights. First, the bed ground itself was utterly denuded of all forage plants; then the adjoining ranges began to deteriorate, the areas closer to the bed ground suffering most. Under the "bedding out" system no bed ground is used more than one night and the sheep have fresh feed at all times. Under the former system of management the annual loss in summer grazing capacity about bed grounds was approximately 300 sheep per square mile, and part of this grazing land was practically permanently ruined for grazing purposes.

For many years western stockmen believed that cattle and sheep could not graze upon the same range. This has proved to be a myth. It is entirely a question of management, especially adjusting the number of each class to the forage available for it. Broadly speaking, cattle prefer grasses, while sheep are fond of "weeds" as well as grasses. Horses can feed on range unsuited to sheep and too far from water for cattle.

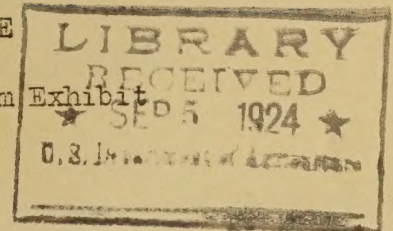
One of the first indications of overgrazing and injury to the range is the decline in vigor and stand of the best grasses and "weeds" and the increase of less palatable plants. This deterioration follows in almost regular succession, each period showing the loss of the palatable plants and an increase in the number of non-palatable ones. Stockmen should study the plant life on their ranges so that they may detect these changes in the range cover in sufficient time to take the steps necessary to prevent further deterioration and to insure re-establishment where deterioration has already set in.

Further information on the subject of forest-range management is available from the Department of Agriculture.

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EX4R

UNITED STATES DEPARTMENT OF AGRICULTURE
Summary of
Western States Agricultural Extension Program

RANGE CATTLE



This exhibit enumerates some of the details necessary for "Good Management of Range and Cattle." In addition to colored bromides and legends, an illustrated story of range and cattle management, in six parts, is projected automatically on a screen.

Part I of this story makes an appeal for a larger number of calves per number of cows kept and a more uniform calf crop. This is to be accomplished by keeping the breeding herd in thrifty condition with plenty of range forage and supplemental feed and water; by selecting cows and purebred bulls of suitable age and a definite type; by providing at least one bull for every 20 cows with good distribution of the bulls; by culling and shipping non-breeders, old, off-color, and undersized cows; and by breeding to have the calves of uniform age.

Part II urges the rancher to keep his young stock undergoing a steady development, by providing sufficient feed to insure growth at all times and additional feed and shelter for the calves in severe weather; by providing adequate and readily accessible water; and by keeping young heifers from bulls until of breeding age.

Part III considers the range forage that is so essential for economical production and recommends that cattle be withheld from the range until the forage has a good start; that care be taken to prevent overgrazing, with the consequent range deterioration and poor cattle; that the cattle be distributed uniformly by salting and riding; and that grazing be deferred until fall on some part of the range each year. One illustration contrasts two areas separated by a fence, on one side of which deferred grazing has been practiced.

Part IV calls attention to some of the death losses that drain the profits. Those mentioned are losses due to herds too large to be properly cared for and fed; losses due to disease, poisonous plants such as larkspur and the roots of water hemlock (both of which are shown in colored illustrations), and losses due to overloading cars.

Some marketing advice is given in Part V. Typical feeder steers of the three grades in greatest demand, fancy or No. 1, choice or No. 1, and good or No. 2, are shown. A chart is reproduced showing that most range cattle go to market in August, September, October, and November, and that therefore it may pay to market either before or after this heavy movement whenever possible. Furthermore, certain markets specialize on certain grades of cattle, so it behooves the rancher to learn the markets by making use of the daily market information broadcast by the U. S. Department of Agriculture by radio, mail, and telegraph.

The story is completed by Part VI which points out that by keeping ranch records the range cattleman can eliminate those practices that do not pay and choose only those that give promise of being profitable.

THE BEE

The bee is a very important insect in the life of the human race. It is the only insect that produces a substance which is so valuable to man. The honey which it produces is one of the most important of our food products. It is also a very important part of our medicine.

The bee is a very interesting insect. It is a very social insect. It lives in colonies. Each colony has a queen bee. The queen bee is the only female bee in the colony which is able to lay eggs. The queen bee is also the only bee in the colony which is able to fly. The queen bee is the only bee in the colony which is able to produce honey. The queen bee is the only bee in the colony which is able to produce wax. The queen bee is the only bee in the colony which is able to produce propolis. The queen bee is the only bee in the colony which is able to produce royal jelly.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Summary of
Western States Agricultural Extension Program Exhibit.

RANGE SHEEP

Some of the problems that arise during a year's work with range sheep are answered in this exhibit entitled, "A Year With Sheep on the Range." The story is divided into seven parts to show the season during which each problem occurs, and to show an economical arrangement of the range for best results. Each part is illustrated with an enlarged photograph painted in colors. The following points are emphasized:

Fall Range, on lands too dry in summer and snowbound in winter -

Ewes need good grazing during breeding season for largest lamb yields.

Use purebred rams, well-fed and robust.

Sheep thrive best when they have water at least once a day.

Insure good spring grazing by not overgrazing the fall range.

Winter Range, on lower elevations with protection from storms and heavy snows -

Insure adequate forage by using this range only during winter.

Save feed by winter grazing, but trail to feeding grounds before snow-bound on range.

Watch local storm forecasts.

Winter Feeding Grounds, on irrigated valleys where alfalfa is grown -

Feed hay two or three times a day. Keep ewes gaining but avoid waste.

Feed grain beginning a month before lambing.

Spring Range and Lambing Grounds, on same grounds as used for fall range -

Let palatable forage get a good start before grazing.

Reserve a specific area of luscious forage for lambing.

Lack of feed may cause excessive losses of both ewes and lambs.

Ewes nursing young lambs need water every day.

Protect lambs in cold, stormy weather.

Give each ewe and lamb special attention if necessary.

Shearing Time, at the foothills -

Your wool is worth \$5 per sack more:

When black wool, tags, buck wool, and dead wool are each in separate sacks,

And the main grades are attractively packed, flesh side out and shoulder showing, tied with paper twine and the brands are from paint that scours. Market to secure this premium.

Summer Range, in the National Forests where shade and lush forage are found -

Produce fat lambs and a large quantity of clean wool and protect timber reproduction and watersheds by -

Proper stocking of the range,

Bedding sheep on new ground every night,

Herding openly and quietly,

Holding the sheep off some area each year until the forage is mature.

Ready for Market -

Market the lambs when as nearly finished as the range will produce.

Make them attractive to the buyer by sorting into uniform groups.

Get the maximum price by selling on grade or according to merit.

Market cull ewes and those not producing lambs.
